

WHAT IS CLAIMED IS:

1. An X-ray emitter comprising:
 - a. an anode;
 - b. a cathode;
 - c. a vacuum evacuated body in which the anode and the cathode are placed;
 - d. an opening the body; and
 - e. a high-voltage connector placed in the opening, the connector closing off the opening in a vacuum-tight manner,
 - f. thereby subjecting the connector to a vacuum on one side of the cathode and to ambient air on an opposite side.
2. The emitter according to claim 1 wherein the cathode is supported by the connector.
3. The emitter according to claim 2 wherein the cathode is supported by the connector by means of an intermediate spacer.
4. The emitter according to claim 1 wherein the body is made of metal.
5. The emitter according to claim 2 wherein the body is made of metal.
6. The emitter according to claim 3 wherein the body is made of metal.
7. The emitter according to claim 1 wherein the body comprises a material having an atomic number less than 82.
8. The emitter according to claim 2 wherein the body comprises a material having an atomic number less than 82.
9. The emitter according to claim 3 wherein the body comprises a material having an atomic number less than 82.

10. The emitter according to claim 4 wherein the body comprises a material having an atomic number less than 82.

11. The emitter according claim 1 wherein the body comprises a cylindrical portion forming the opening, the connector being placed and fastened into the cylindrical portion.

12. The emitter according claim 2 wherein the body comprises a cylindrical portion forming the opening, the connector being placed and fastened into the cylindrical portion.

13. The emitter according claim 3 wherein the body comprises a cylindrical portion forming the opening, the connector being placed and fastened into the cylindrical portion.

14. The emitter according claim 4 wherein the body comprises a cylindrical portion forming the opening, the connector being placed and fastened into the cylindrical portion.

15. The emitter according claim 5 wherein the body comprises a cylindrical portion forming the opening, the connector being placed and fastened into the cylindrical portion.

16. The emitter according to claim 1 wherein the connector is made from a ceramic.

17. The emitter according to claim 2 wherein the connector is made from a ceramic.

18. The emitter according to claim 3 wherein the connector is made from a ceramic.

19. The emitter according to claim 4 wherein the connector is made from a ceramic.

20. The emitter according to claim 5 wherein the connector is made from a ceramic.

21. The emitter according to claim 6 wherein the connector is made from a ceramic.

22. The emitter according to claim 1 wherein the connector is made from an electrically insulating oxide.

23. The emitter according to claim 2 wherein the connector is made from an electrically insulating oxide.

25. The emitter according to claim 3 wherein the connector is made from an electrically insulating oxide.

26. The emitter according to claim 4 wherein the connector is made from an electrically insulating oxide.

27. The emitter according to claim 5 wherein the connector is made from an electrically insulating oxide.

28. The emitter according to claim 6 wherein the connector is made from an electrically insulating oxide.

29. The emitter according to claim 7 wherein the connector is made from an electrically insulating oxide.

30. The emitter according to claim 7 wherein the connector comprises aluminum.

31. The emitter according to claim 8 wherein the connector comprises aluminum.

32. The emitter according to claim 9 wherein the connector is aluminum based.

33. The emitter according to claim 9 wherein the connector is aluminum based.

34. The emitter according to claim 9 wherein the connector is aluminum nitride-based.

35. The emitter according to claim 9 wherein the connector is aluminum nitride-based.

36. An X-ray apparatus comprising:

a. an X-ray emitter comprising:

- (1) an anode;
- (2) a cathode (30);
- (3) a vacuum evacuated body (16) in which the anode and the cathode are placed;
- (4) an opening (19a) the body; and
- (5) a high-voltage connector (25) placed in the opening, the connector closing off the opening in a vacuum-tight manner;
- (6) thereby subjecting the connector to a vacuum on one side of the cathode and to ambient air on an opposite side; and

b. means for receiving the X-rays and capable of supplying an output signal representative of an object placed in the path of the X-rays.

37. The apparatus according to claim 36 wherein the connector is made of an insulating oxide.

38. A method of manufacturing an X-ray emitter comprising:

- a. providing a body capable of being made vacuum-tight;
- b. forming an opening in the body;

- c. placing an anode and a cathode in the body;
- d. placing a high-voltage connector in the body;
- e. fastening the connector into the opening, the connector closing off the opening in a vacuum-tight manner; and
- f. evacuating the body so that the body is subjected to a vacuum on the side of the cathode and to atmospheric pressure or ambient air on the opposite side.

39. The emitter according to claim 38 wherein the connector is made from an electrically insulating oxide.